ABSTRACT OF THE DISCLOSURE

A signal processing device and a signal processing method can reduce the work area and realize a higher speed for arithmetic operations by reducing the number of multiplications and additions when performing MDCT operations, IMDCT operation and/or transforming code strings between different coding system. When the first code string 1 formed by transforming a time series signal with a frequency band from 0 to 20 kHz into a spectrum signal by MDCT and encoding the spectrum signal is decoded by a spectrum decoding circuit 172 and the obtained spectrum signal is transformed back into time series signals by means of IMDCT circuits 173 through 175 and transformed again into spectrum signals by MDCT circuits 176 through 178 so that it may be encoded and transformed into the second code string 2 by means of an adaptive bit allocation coding circuit 179, if the frequency band of the second code string 2 may be reduced to a 0 to 15 kHz band, the spectrum decoding circuit 172 takes out on the high frequency band from 0 to 15 kHz and the IMDCT circuit 173 performs an FFT operation with a short tap length in the IMDCT processing operation.